



*Planty Organic is a study into a new and innovative agricultural system in general and the nitrogen cycle in particular. The study started in 2012 and is carried out at the Kollummerwaard model farm in Munnukezijl (on the boundary of Groningen/Friesland). More information about this interesting study can be found at the website [www.biowad.nl](http://www.biowad.nl).*

## Review of crops 2013: study director satisfied

The scientific study director Monique Hospers (Louis Bolk institute) looks back with satisfaction over the past year. A great deal of knowledge has been acquired during this second year of Planty Organic. Most crops were successful in 2013. Oats performed better than during the previous year (7.5 tons/ha). Carrots and potatoes were also very successful (resp. 80 tons/ha and 35 tons/ha). Wheat appeared to have too little growing power during the entire season; there were too few nutrients available. The yield was not very high (4.5 tons/ha). Cauliflower was a source of concern this year. Since the cauliflowers have had too little feed, they remain too small to offer to the fresh market. A second alternative is the deep-frozen market. Unfortunately the market price for biological deep-frozen cauliflower at the time of harvest was so low, that it was decided to peel the cauliflowers. In 2014 there will possibly be another product chosen with a more stable supply/demand and price (for instance pumpkin).



## Lessons learned from 2013

With a review it is also important to reflect on the lessons learned. A lot went well, but there are things that could be better in 2014. For example, it turned out that wheat requires a better previous crop than carrots, because the yield of the wheat was very low. Furthermore it turned out that extra processes were necessary to fertilize the cauliflowers. It was difficult to spread fresh product and grass-clover silage in the upper section of the soil. Both wheat and cauliflower have therefore had too little nitrogen available. There is therefore still work to be done for 2014!

## Economic side of Planty Organic

Along with the study into a new and innovative agricultural system in general and the nitrogen cycle in particular, another kind of study was started in November 2013. Sander Heidema (at the request of the Planty Organic working group) examined the economic side of Planty Organic. Sander studied at the Van Hall Larenstein in Leeuwarden where he successfully completed his Bachelor study in Environmental Science in 2012. His economic research will give insight into the economic viability of this agricultural system. It is still too early to offer a definite result, since the test will still run for a further four years. It is the intention that with this result some practical basis is offered with regard to the economic side of Planty Organic. Furthermore it is the intention to produce a kind of format (with preconditions and assumptions), so that at the end of the pilot the latest figures can be easily calculated and compared with conventional and organic farming. The expectation is that the study will be completed in the spring of 2014. *'It is an instructive study, from which hopefully practical figures will ensue. I think it's fantastic that I can contribute to this innovative agricultural system,'* according to Sander.

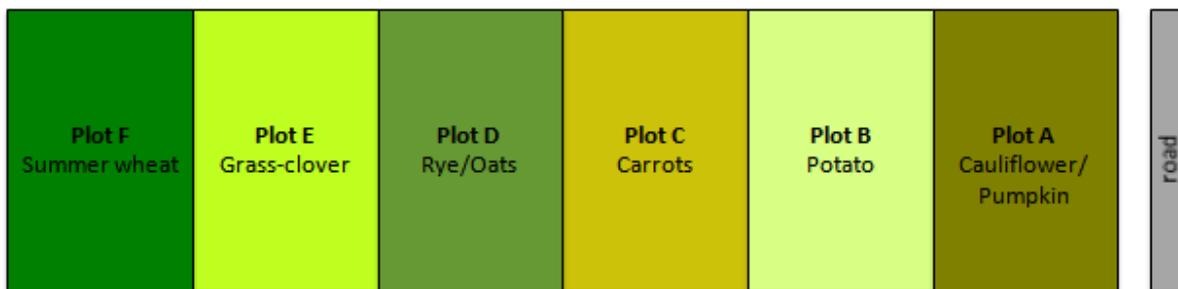
## Planty Organic a paradox?

You could say that Planty Organic is not a 'sustainable' system. There is indeed chosen for a zero-supply of P and K and therefore for a net removal of P and K with the sold products. This will lead to depletion of the soil in the future. There are two reasons why the choice is still made for this strategy.



- A. This type of marine sandy soils contains a large amount of phosphate and an even greater amount of potassium. The supply of P and K from outside the farm can often be derived from the supply of extracted P and K. We now know that the easily recoverable stocks of P are shrinking. There is no replacement for P; it is therefore very important to process P as efficiently as possible. Making use of locally available phosphate is then a logical consideration. Eventually society can go as far as to regionally close the P cycles by returning domestic organic waste (GFT and sewage sludge) back to the land. In this sense the zero-supply of P is a temporary matter and P could be supplied in the (near) future, and then proportionally with the removal of P in products. This all applies in the same way for Potassium, but the situation is far less problematic than for phosphate.
- B. The approach for Dutch phosphate fertilizing recommendations runs totally via soil-chemical measurements of P<sub>w</sub> and P-AI. The P availability for plant growth is however also determined by the intensity and depth of rootage, by soil activity (for example mycorrhizas) and by mineralization of phosphate from organic matter. By not supplying phosphate, we force the plants to search and mobilize this for themselves and from the soil supply. There is a large soil supply on this type of soil. We further help the phosphate dynamics by bringing additional organic matter into circulation with the help of green fertilizers and manures. We also think that the P availability can be increased by raising P from deeper layers. Whether these ideas are realistic will become apparent in the coming years. It is expected that within a few years a superb location will be created on the Planty Organic Test Field to perform follow-up research into P availability.

## Summary of crops test field 2014



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